

AUDIO VISUAL DEVICE

BACKGROUND OF THE INVENTION

In the audio visual field it is quite common to employ combined visual and audio programs for simultaneous benefit. It is also of significance to be able to present an audio and visual program where the audio portion is presented in stereophonic fashion and the visual portion in stereoptical fashion. For mass use, it is difficult to provide the above features to a large mass of consumers in an economical and efficient fashion.

Therefore, a low cost, compact, portable audio visual device which provides the user with stereophonic-like audio programing in synchronization with stereoptic viewing programing would be extremely desirable.

It should be kept in mind that known synchronization procedures for advancing the audio and visual programs are often quite complicated and complex and expensive in design. Naturally a simplified system for advancement of the combined synchronized programs would be of great value in the art. Additionally, in known systems, often separate component parts are required as attachments with an audio visual device to achieve all of the above advantageous features. For example, often separate headphones are required to achieve the stereophonic audio effect. Furthermore, often separate complicated lens attachments are required to obtain the desired visual effect.

In regard to the synchronization of the visual with the audio portions of the program, the complicated drive mechanisms which are necessary to assure synchronization and unified operation are complicated, expensive and bulky. Also adding to the size and weight of an audio visual system of this type is the normally used film handling mechanisms to transport the film along a desired path past the viewing point. It is readily apparent that simplicity in the above discussed areas would provide an audio visual system for mass distribution and use in a portable ready-to-use form and would be of great value in the art.

SUMMARY OF THE INVENTION

With the above considerations in mind, it is among the objectives of the present invention to provide a compact portable audio visual device which provides synchronized stereophonic-like audio and stereoscopic visual programs in a simplified portable low cost unit.

The audio visual device provides for viewing material on a stick slide with a simplified mechanism for advancing the material from one position to the next automatically in response to signals received from a continuous audio program. The material on the stick slide is fed by gravity into the device and the slide is moved downwardly by an audio tape signal initiating mechanism combined with an electronic logic circuit to trigger movement of the stick slide from a first to a second position. The audio tape signal initiating mechanism energizes a solenoid which actuates a pawl mechanism engaging ratchet teeth on the stick slide to move the slide and material from position to position. The device includes a cabinet having flap structures adjacent the eyepieces to permit the sound from the cartridge tape to be reflected into the ears of the viewer in a stereophonic manner without the necessity of earphones. The device includes an optical arrangement for viewing of stereoscopic or binocular views on the stick slide. A de-

vice is compact, inexpensive to manufacture, simple in operation, and durable in use.

To summarize the invention in general, an audio visual device is provided for viewing pictures, symbols, reading material and similar material synchronized with sound. The device includes a housing having audio and visual passageways therein. A lens system is in the housing aligned with the material to be viewed. Support means and a gravity feed advance mechanism is in the housing positioned to engage with visual material introduced to the housing and to advance the visual material automatically in a predetermined manner. Audio means are in the housing and are adapted to receive and transmit an audio program. A power source is associated with the housing and audio control means are in the housing responsive to said power source to operate the audio receiving means. Finally, visual control means are present and are responsive to predetermined audio signals from the audio means to automatically activate the advance mechanism to advance the visual material under the force of gravity in synchronization with the audio program.

With the above discussed objectives, among others, in mind, reference is had to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a perspective view of the device of the present invention;

FIG. 2 is a perspective view from a different angle with portions removed to show the inside of the device;

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a top view, partially broken away, of the device;

FIG. 5 is a front view of the stick slide;

FIG. 6 is a sectional view taken along the line 6—6 of FIG. 5;

FIGS. 7 and 8 are side views of the pawl engaging the ratchet teeth of the slide stick;

FIG. 9 is a sectional view of the optics layout where the interpupillary distance is adjustable;

FIG. 10 is a front elevation of the lens plate to be used for the optics layout of FIG. 9;

FIG. 11 is a block diagram of the circuitry employed with the device of the invention;

FIG. 12 is a fragmentary exploded perspective view of an alternate embodiment of the slide stick; and

FIG. 13 is a sectional side view of the alternate embodiment of the slide stick.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, there is shown in FIG. 1 and 2 a housing 1 which can be of any suitable material such as plastic or metal. The front of the housing has a cover plate 2 and a lens plate and grill 3 which are removable for ready access to the equipment mounted inside the device. The plate 3 has apertures 3a into which are mounted lenses 4 and grills 3b for the sounds emanating from the device. Housing 1 has a cavity 1a at the base for insertion of a tape player 5. Housing 1 is shaped at its upper end adjacent the grills 3b to provide wings 1b which serve to reflect into the ears of the viewer the sound coming from the device through the grills. The top of housing 1 has a slot 1c into which stick slide 6, bearing the material 7 to be viewed can be in-